What is claimed is:

1. A metal contact for a copper alloy surface, comprising:

an electroplated barrier layer having a thickness ranging from about 0.00001 inch to about 0.0001 inch, wherein the barrier layer is selected from the group consisting of cobalt, cobalt-nickel alloys, cobalt-tungsten alloys, cobalt-nickel-tungsten alloys, and rhodium.

2. The metal contact of claim 1, wherein the barrier layer thickness is 0.000025 to 0.0001 inch.

3. The metal contact layer of claim 2, wherein the barrier layer is cobalt.

4. The metal contact of claim 2, wherein the barrier layer is a cobalt-nickel alloy.

5. The metal contact of claim 2, wherein the barrier layer is a cobalt-tungsten alloy.

6. The metal contact of claim 2, wherein the barrier layer is a cobalt-nickel-tungsten alloy.

7. The metal contact of claim 1, further comprising an outer layer.

8. A method of forming a metal contact having a barrier layer ranging from about 0.00001 inch to about 0.0001 inch, comprising the steps of:

providing a substrate; and

electroplating a barrier layer on the substrate, wherein the barrier layer is selected from the group consisting of cobalt, cobalt-nickel alloys, cobalt-tungsten alloys, cobalt-nickel-tungsten alloys, and rhodium.

9. The method of claim 8, further comprising the step of performing a light acid etch before the step of electroplating.

10. The method of claim 9, further comprising the step of activating the surface before the step of electroplating.

11. The method of claim 8, wherein the cobalt is electroplated at a current density of about 10-150 amperes per square foot.

12. The method of claim 11, wherein the plating bath includes a cobalt sulphamate, cobalt sulfate, and /or cobalt chloride.

13. The method of claim 12, wherein the plating bath further includes tungsten salt, organic acid, and ammonium oxide.

14. The method of claim 13, wherein the tungsten salt is sodium tungstate.

15. The method of claim 14, wherein the organic acid is citric acid.

16. The method of claim 12, wherein the plating bath further includes nickel sulfamate, nickel sulfate, and /or nickel chloride and organic additives.

17. The method of claim 8, wherein in the substrate is copper.

18. The method of claim 8, further comprising the step of providing an outer layer in contact with the barrier layer.

19. The method of claim 17, wherein the outer layer is selected from the group consisting of tin, gold, palladium, platinum, silver, and combinations thereof.

20. The method of claim 19, wherein the outer layer is tin.

21. The electrical contact of claim 8, wherein the outer layer is selected from the group consisting of tin, gold, silver, platinum, palladium and combinations thereof.

Add A1

FOR EXAMINATION PURPOSES